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ABSTRACT

This elective course for grades 7-12 was created with a three fold purpose: 1) to create in the student an awareness of the effect of sculptural forms on his environment; 2) to introduce the student to an appreciation of stone sculpture; and 3) to further enhance the artistic abilities of the student through sculpting in stone. Course content includes an introduction, demonstration of studio procedures, demonstration of stone sculpture techniques, studio work, and critique. Some of the behavioral objectives are for the student to be able to: 1) define vocabulary terms; 2) identify stone sculptors from past/present art movements; 3) create open and/or closed forms in stone; and 4) identify the qualities of various types of carving stone. Course procedures, strategies, and suggested learning activities are outlined, and resources for students and teachers are listed. (JLB)

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AUTHORIZED COURSE OF INSTRUCTION FOR THE QUINMESTER PROGRAM

DADE COUNTY PUBLIC SCHOOLS

SCULPTURE: STONE SHAPES

6683.08

Art Education

DIVISION OF INSTRUCTION • 1971

ED 072997

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SCULPTURE: STONE SHAPES

(Tentative Course Outline)

ART: 6683.08
6681.07
6682.07

Written by Edward R. Dubocq

for the

DIVISION OF INSTRUCTION
Dade County Public Schools
Miami, Florida
1971

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PREFACE

Learning has been referred to by many contemporary educators as a noun; but it is a verb experience--full of action and involvement, doing and being. At least it should be--and that kind of involved learning is what this course of study is all about.

The Quinmester Visual Arts Education Curriculum construct is a long range developmental effort directed towards providing a general education for learners in the aesthetically related art education field. To accomplish this goal, instructional courses of study have been developed basically for teachers by teachers. Many Dade art specialists in various arts media have been recruited by the Art Office to write over 75 new and innovative courses of study in the area of art education. Educational specialists from the four corners of this land, along with aestheticians, social critics, and behavioral scientists have hailed the philosophy of the overall art curriculum construct undertaken by the Division of Instruction to be consistent with the latest national trends in art education, and to be an exemplary example of "success" oriented curricula designed to provide intense involvement in aesthetics and creative arts through group and individualized participation on the part of the learner.

All courses of study produced have been constructed with one major goal in mind; to provide a broad framework of goals and objectives; content; instructional procedures and strategies; and suggested learning activities. Many of the technically oriented courses of study list a variety of "Work Sheets" designed to assist the learner with specific and highly technical studio procedures delineated in a manner so that art specialists (teachers) can use them "as is," or utilize the source information as a basis for producing "Learning Activities Packages." The appendix may include other pertinent material needed for today's contemporary art curriculum, e.g., vocabulary, resources for both learner and teacher, etc.

Constructive criticisms or recommendations relating to this publication are invited; please send to: Art Education Office, Room 300, Lindsey Hopkins, A-1.

Charles M. King, Consultant
Art Education

TABLE OF CONTENTS

Page

I. Course Title 1

II. Course Number 1

III. Rationale 1

IV. Course Description 2

A. Description

B. Textbooks

C. Vocational Scheme

D. Method (By week)

E. Synopsis

V. Enrollment Guidelines 3

A. Prior Courses

B. Evaluative Device

C. Concurrent Programs

VI. Behavioral Objectives 4

A. Competencies Expected

B. Conditions

C. Acceptable Preformance

VII. Course Content 6

VIII. Course Procedures, Strategies, and Suggested Learning Activities 7

A. Vocabulary List 7

B. Procedure 8

C. Supplies and Materials 10

Table of Contents (cont.)

Page

D. Studio Procedures 10

E. Hints for Instructors 11

F. Work Sheets

Selection of Stone 13

Selection of Tools 15

Direct Carving Technique 16

Surface Treatment 19

Base Design and Creation 21

IX. Resources for Pupils 23

X. Resources for Instructors 24

A. Movies, Slides, etc.

B. Textbooks

I. COURSE TITLE

SCULPTURE: STONE SHAPES

II. COURSE NUMBERS

ART: 6683.08

6681.07

6682.07

III. RATIONALE:

Sculpture: "Plastic or hard materials that have been welded, carved, engraved, molded, or constructed into a primarily three-dimensional work of art."

We are constantly surrounded by varying forms of sculpture in our natural environment. "Sculpture" can entail any three dimensional form around us, from a tree to a building. Sculpture, in one way or another, effects every day of our lives; be it through an object that is simply pleasing to the eye, or the pure functionality of a unit of sculptured steel, the modern automobile.

This course has been created with a threefold purpose: First, to create in the student an awareness of the effect sculptural forms have on his environment. Secondly, to introduce the student to the area of stone sculpture appreciation; and, thirdly, to further enhance the artist abilities of the student through sculpting in stone.

IV. COURSE DESCRIPTION

A. Elective, grades 7-12, exploratory

B. Textbooks and other materials

Text materials, visuals, vocabulary lists, etc., may be selected from examples listed in parts IX and X of this Quinmester Course of Study, at the disgression of the individual instructor. It is suggested that references marked with an asterisk be kept on hand for student use in the classroom.

C. Vocational scheme

To prepare the student for more advanced techniques and courses in the area of sculptural art.

D. Method (by week)

1. Lecture and demonstrations
2. Studio procedure
    a. Critique at the end of each week
    b. Movies, lectures, resource materials
3. Studio work
4. Final critique, grading and clean up of studio area

E. Synopsis

NOTE: There are suggested presentation outlines for each of the sub headings in this section. They are located in part VIII.

1. Introduction
    a. Movies, slides, visuals
    b. History and appreciation

2. Techniques in stone sculpture

   a. Selection of stone

   b. Selection of tools

   c. Direct carving technique

   d. Surface treatment

   e. Base design and creation

3. Critique and evaluation

V. ENROLLMENT GUIDELINES

A. Prior courses

No prerequisites.

B. Evaluative device

Empirical testing should be followed.

C. Concurrent programs

There is no specific program that must be taken concurrently.

VI. BEHAVIORAL OBJECTIVES

A. Competencies expected upon completion of this unit.

The student will be able to

1. List correctly the procedures for the following stone sculpture techniques:
   a. Selection of stone
   b. Selection of tools
   c. Direct carving technique
   d. Surface treatment
   e. Base design and creation
2. Define, orally or in writing, related vocabulary terms as listed in part VIII of this Quinmester Course of Study.
3. List and identify a minimum of four stone sculptors from past and/or present art movements.
4. Demonstrate the correct care for and use of stone carving tools and related equipment used in the quin.
5. Demonstrate the correct procedures for working in a stone sculpting studio.
6. Create open and/or closed forms in stone.
7. Create and present for grade one sculptural example in stone, using the direct carving method. (Sculpture is to include a base.)
8. List and identify the qualities of various types of carving stone (i.e. marble, serpentine, sandstone, etc.).

9. List the various types of surface treatment that may be applied to stone sculpture (as listed in part VIII of this Quinmester Course of Study).

10. List the correct procedures for design and creation of a base for a stone sdulpture.

B. The student will demonstrate competencies under the following conditions:

1. Classroom demonstration
2. Classroom discussion
3. Individual research
4. Individual studio procedure
5. Group critique
6. Emperical testing

C. Acceptable preformance will be determined by the individual instructor on the basis of

1. Evaluation of classroom participation
2. Emperical testing
3. Required projects turned in for grade
4. Fulfillment of .10 performance objectives

VII. COURSE CONTENT

A. Introduction

1. Movies

2. Slides

3. Resource materials

4. Discussion

5. Lecture

B. Demonstration of studio procedures

1. Tools

2. Materials

3. Care and use of studio

C. Demonstration of stone sculpture techniques

1. Selection of stone

2. Selection of tools

3. Direct carving techniques

4. Surface treatment

5. Base design and creation

D. Studio work

1. Individual student assistance

2. Individual student critiques

E. Critique

1. Group

2. Individual

VIII. COURSE PROCEDURES, STRATEGIES, AND SUGGESTED LEARNING ACTIVITIES

A. Vocabulary list

1. Carborundum: A silicone carbide produced in an electric furnace used as an abrasive material for polishing stone.
2. Chisel: A sharp edged or pointed tool, available in various sizes and shapes, used primarily for carving stone.
3. Closed form: A form being solid in appearance; having no holes or caveties. A form that encloses space.
4. Direct carving: A process by which a subject is sculpted directly from a solid piece of stone by cutting in from the surface.
5. Igneous: Stone that is formed by the action of fire: extremely hard.
6. Mallet: An instrument that is similar to a hammer--used in striking a chisel to carve stone.
7. Media: Any substance used in the creation of stone sculpture.
8. Metamorphic: Igneous and sedimentary stones that have been altered physically by pressure, heat and chemical action.
9. Open form: A form containing hollow areas, caveties, or holes (as opposed to "closed" forms).
10. Pumice: A porous or spongy form of volcanic glass used as an abrasive for polishing stone.

11. Rasp: A course toothed file used for surface treatment on stone.

12. Riffler file: A file similar to a rasp, only smaller, used to work areas where a rasp cannot reach.

13. Sculptor: One who sculpts, or creates sculpture.

14. Sculpture: Plastic or hard materials that have been carved, engraved, molded, welded, or constructed into a primarily three dimensional work of art.

15. Sedimentary: Formed by the action of water, or sediment. Usually showing stratification (layering).

16. Studio: Any area designated for, or in which artistic creation takes place.

17. Texture: The structure of the surface of a work of art.

18. Wet and dry: A sandpaper that may be used dry, or in combination with water to polish stone.

B. Procedure

(Suggested instructor demonstration aid.)

The general procedures that apply to all forms of sculpture will be discussed in this section. Individual procedures for specific sculpture techniques will be listed on the work sheets.

The primary guideline applying to all forms of sculpture is good three-dimensional design. In sculpture, one must relate his design to a free standing form that will be viewed from all sides. One should keep this fact in mind when designing

his sketches or models. If a sculpture has been well designed, it will be pleasing to the eye from any angle.

As in painting or collage, the design should be developed through a series of thumbnail sketches or clay models. Develop an idea of what you want your sculpture to look like before you begin to carve. By doing this series of quick "shape" or "form" models, one will discover certain forms that appeal to his artistic style. In some cases, the rough block of stone will suggest certain forms in itself.

Another factor to consider is the base, or stand, that will support the finished sculpture. It is easy to make the mistake of designing a base that detracts from the visual effect of the sculpture. Remember that when a base is used, it becomes a part of the sculpture. It should relate to the sculpture and yet be subtle in its relationship.

Finally, in creating your sculpture, try and have the finished piece show "movement." A piece of sculpture that appears to relate "movement" or "action" has a much greater and more pleasing visual impact than one that is stagnant or unmoving.

More specific steps in the creation of stone sculpture are outlined in the work sheets included in this Course of Study.

C. Supplies and materials needed

1. Stone (see work sheet)
2. Carving tools (see work sheet)
3. Wet/dry sandpaper (200-400 grit)
4. Sandbags
4. Oil drums
6. Water
7. Files
8. Rasps
9. Goggles
10. Pumic stone
11. Steel rod
12. Epoxy glue
13. Material for base (wood, stone, etc.)
14. Carborundum paper
15. Polishing wax (furniture or automobile type)
16. Polishing cloth
17. Polishing powders

D. Studio procedures for students

(This list may be duplicated and distributed to individual students.)

1. Each student will be assigned an individual work and

storage area which he or she will be responsible for.

2. Carving tools will be distributed on a sign-out basis. Students will be expected to demonstrate correct care for and use of carving tools.
3. At no time will any student be allowed to use, touch, or move another student's materials or project.

E. Hints for instructors

1. There are many visual aids available. Plan the ordering of movies, slides, etc. well in advance.
2. Design the studio so that there is a specific area or rack to store all supplies. This makes for an excellent way of getting a quick check of materials at the end of each period.
3. Assign monitor positions, on a rotating basis.
4. If tools are at a premium, have students sign them out.
5. Have a monitor sweep the studio at the end of each period.
6. Fifty gallon oil drums make excellent work tables for students.
7. Prepare a one-foot-square by two or three inch thick sandbag for each student, out of heavy duct canvas. They make excellent supports while the sculpture is being carved.
8. Make regular periodic checks of students carving tools

for sharpness. A dull carving tool will make carving difficult and slow the students progress.

9. Require all students to wear goggles to protect their eyes when carving, or watching others carve.

F. Work sheets

The following suggested work sheets have been designed as aids for the indicidual students. They may be duplicated as-is and distributed to the students for reference, following the instructors demonstrations.

WORK SHEET--STONE SCULPTURE

Selection of Stone

There are numerous types of stone, all varying in color, texture, hardness, and consistency. In this work sheet, several of the more common types (many of which may be obtained locally and cheaply), and their characteristics, will be discussed. The final selection is up to the individual sculptor.

The following descriptions are applicable to most examples of each type. There are always some individual pieces of stone that may differ.

1. Marble (metamorphic)
   a. Consistency: Medium hard to hard.
   b. Color: Varying--cream, white, pink
   c. Sculptability: Relatively easy to control. Minimal amount of faults. (Many types available--Carrara (Italy) is the best available.--Georgia marble is the most obrainable at a low cost.)
2. Soapstone (talc, steatite) (Metamorphic)
   a. Consistency: Soft, easily carved
   b. Color: White-gray, green, brown
   c. Sculptability: Easily carved, highly polishable, inexpensive. Soap-like feel (thus the name soapstone). Less colorful than marble, less durable.

3. Serpentine

   a. Consistency: Medium hard

   b. Color: Varying shades of green

   c. Sculptability: Unpredictable, contains many faults. Highly polishable. May be obtained locally.

4. Granite (Igneous)

   a. Consistency: Very hard, coarse grained

   b. Color: Very light to black; speckled

   c. Sculptability: Very hard (not recommended for beginners)

5. Sandstone (Sedimentary)

   a. Consistency: Very hard

   b. Color: Brown

   c. Sculptability: Almost as hard as granite. Very similar in structure

6. Slate (metamorphic)

   a. Consistency: Soft

   b. Color: Gray, green, brown

   c. Sculptability: Easily carved, however, tends to split in layers. Highly polishable with wax. May be obtained locally

Most of the above types of stone are available locally. Marble and serpentine are the most applicable for this course.

WORK SHEET--STONE SCULPTURE

Selection of Tools

The following tools and equipment are considered necessary for carving in stone:

1. Mallet: Striking mallets come in sizes from 1 to 2 1/2 lbs. (A 2 lb. mallet would be the most practical for this unit.) (Iron head)
2. Point: One carving point, having a carbide tip,--standard size. ----------

3. Claw: One four-pointed claw chisel (hardened steel)

4. Flat chisel: One (hardened steel)

5. Protective goggles: (or face mask)
6. Pumice stone
7. Assorted files and rasps: (hardened steel)
8. Wet/dry sandpaper: (assorted grits--to ".400")
9. Carborundum paper
10. Polishing powder
11. Wax: Furniture or automobile type
12. Polishing rags: Preferably cotton

NOTE: There is an almost unlimited variety of points, claws, and chisels available. Those suggested in this work sheet are minimal, yet sufficient in number to carve in stone.

(Some of the above materials may be supplied by your instructor.)

WORK SHEET--STONE SCULPTURE

Direct Carving Technique

It is best to begin by doing a series of thumbnail sketches. This course is concerned with "Sculpture in the Round." That is, sculpture that may be viewed from all sides. Work up sketches of the shape you wish to carve, doing views from different angles. (Some pieces of stone actually suggest shapes from within.) Once you have decided upon the shape, or see a shape in the stone, you are ready to begin.

Check the stone for faults. They may appear as hairline cracks or dark streaks on the surface. (Wetting the stone may make it easier to see these faults.) If you should discover a fault, try and design your sculpture to work around it or carve it away. It will help to avoid a possible disappointing split in the stone later.

Set the stone down firmly on a sandbag. Using the point and mallet, experiment on the surface of the stone. (Are you wearing protective goggles?) The point should be held at between a 45 and 90 degree angle from the surface of the stone.

Get the "feel" of the material and the tools. Different types and pieces of stone vary greatly in their composition. Observe how the stone breaks off, or chips. Once you have a good idea of what the stone is like, you are ready to begin.

Some sculptors draw on the stone to help control the carving. If

this works for you it would be to your advantage to do so.

When you begin to carve, the best way to approach the piece is to carve from all sides, rather than concentrating on one specific side or area. This will help control your proportion.

Do not try to rush the carving. Stone sculpting is a deliberate process and cannot be hurried. Remember, once you cut a piece of stone away, you cannot put it back.

Continue to carve the stone with the point, until you are approximately 1/2 inch from the finished surface in all areas. You may then proceed to carve using the claw.

The claw is the first step in finishing. It creates a criss-crossed pattern in the stone which is smoother than the surface texture created with the point. (Should you be using a textured surface, there may be areas you wish to leave with point texture alone, or you may want to leave claw texture in certain areas.)

Once you have finished with the claw you are ready to repeat the process using the chisel. With the chisel, the surface can be smoothed to the final stage in carving. Once this step is completed, you are ready to move on to the work sheet on surface treatment.

Suggestions

1. At all times, tools must be kept sharp. Use a gridstone--without oil. (Oil tends to leave stains in the stone.)
2. When carving, always wear protective goggles.

3. If you encounter a vein in the stone, carve carefully. The vein itself will usually be harder than the surrounding stone. It is better to leave the vein as a small ridge (which can be filed down later) than to try and carve it away with the point or claw. (Carving may cause grooves on either side of the vein.)
4. Remember to work slowly, and carefully. Mistakes are hard to cover up or hide.

Good luck!

WORK SHEET--STONE SCULPTURE

Surface Treatment

Materials

1. Carving tools
2. Files and rasps
3. Pumice
4. Wet/dry sandpapers
5. Carborundum paper
6. Polishing powder
7. Wax
8. Buffing rags

Procedure

There are two basic types of surface treatment. One is a rough, tooled surface; the other, rubbed and polished.

Texture may play a very important part in your sculpture. You will find artists who give strong arguments for both types of finishing. A well rubbed, highly polished surface will bring out all of the grain patterns and color hues in the stone. This process is very effective on hard stone such as marble or serpentine.

On the other hand the play of various textures against each other can also give very dramatic effects to the stone. No two artists will sculpt a piece of stone the same way. Each sculptor's hand tooled marks act almost as a signature does on a painting; identifying the artist with the work.

The final decision as to which type of surface treatment is to be used, rests with the individual artist. The two processes are accomplished as follows:

A. Tooled (textured) surface treatment

A textured surface is one which is left in a rough state. The actual chisel marks used in carving are allowed to remain visible on the surface. The degree of texture depends on how fine the tools, which are used to carve, are. Use of the point alone will result in a very rough surface texture. If the sculptor works all the way down to the claws or riffler files, a much smoother texture will result.

B. Rubbing and polishing

1. This process begins once the sculptor has carved the stone to its smoothest state with chisels and files.
2. The next step is to rub the stone with pumice or other polishing stones. This will bring the surface to a higher degree of smoothness.
3. The stone is then rubbed with wet/dry sandpaper. It is advisable to use water in this step, to keep the stone and the paper clean and abrasive.--Work down to 00 grit.
4. Rub the stone with polishing powder, available from your instructor.
5. Wash the stone thorougly and allow to dry.
6. Apply a final coat of automobile or furniture polish.
7. Buff to a high sheen.

--You are now ready to mount the sculpture.

WORK SHEET--STONE SCULPTURE

Base Design and Creation

Most sculpture is created either free standing, or mounted on a separate base. If your sculpture is of the second type, here are some guidelines in the creation of a suitable base.

Design

A base should be designed to compliment the sculpture for which it is made. The design should be simple and direct. Keep in mind that the base should not detract from the visual impact of the sculpture itself.

Some sculptors have a base in mind as early as when they are still carving the sculpture. However, the artist must remember that the base is designed to fit the sculpture; not the other way around.

Simplicity is the key word in the disign of a bood base.

Media compatability

The next step in creating your base is to select the material from which it is made.

Basically, it is a matter of individual taste as to which material should be selected. As you have already selected a design, the next step is to decide upon a color and texture. For example; a smoothe marble base is generally a cream color. Some types of marble have pink or gray hues. Certain types of stone may not look too pleasing on such a base--for example; serpentine, which is green.

A metal base often works well, for it may be painted any number of colors. There are also many types of wood that can be used effectively.

As you can see, it would be up to the individual artist as to what material to use. Let your artistic knowledge of color and design be your guide.

Texture

Again, we are in the realm of individual taste. Do not limit yourself to just a smooth texture. Experiment with several. You may find your sculpture stands out better against a rough or primitive style base.

Mounting

There are basically two ways in which a sculpture may be mounted.

1. Attaching the sculpture directly to the base with an epoxy-type of glue.
2. Mounting the sculpture in a raised position on wood or metal dowels, also using an epoxy glue.
   --Experiment with both methods before making the mount permanent.

IX. RESOURCES FOR PUPILS

Baldwin, John, Contemporary Sculpture Techniques. Reinhold, 1967.

*Clarke, Geoffrey, A Sculptors Manual. Reinhold, 1968.

Craven, Wayne, Sculpture in America. Crowell, 1968.

Gardner, Albert T., American Sculpture. N.Y.G.S., 1965.

Giedion, Welcker, Contemporary Sculpture. Third edition, Wittenborn, 1961.

Hanfman, George M., Classical Sculpture. Volumn 1, N.Y.G.S., 1967.

*Jansen, History of Art. Prentice Hall, 1962.

*Meilach, Dona Z., Creative Carving. Reilley and Lee, 1969.

*Mills, John W., The Technique of Sculpture. Reinhold, 1967.

Moore, Henry, Sculpture and Drawings. Volumn 3 (1955064), Wittenborn, 1965.

Reed, Sir Herbert, Concise History of Modern Sculpture. Praeger, 1964.

*Reed, Sir Herbert, Form Space and Vision. Graham Collier, 1967. (State adoped text)

*Indicates texts that should be kept on hand for use in the classroom.

X. RESOURCES FOR INSTRUCTORS

NOTE: Resources marked with an asterisk have been selected as most effective during previewing.

A. Movies, slides (Available through Dade County B.P.I.-- Instructional Materials Division)

Beauty in Stone (Filmstrip) 10'C JS Wayne Univ. 1-04130

Living Stone (Filmstrip) 33'C EJS NFB--Canada 1-31155

New Directions in Three Dimensions (1-20) C EJS (slides) 5-20031

New Dimensions in Three Dimensions (21-40) C EJS (slides) 5-20036

Nineteenth Century Sculpture C JST (slides) 5-20158

Twentieth Century Sculpture C JST (slides) 5-20159

B. Textbooks

Clarke, Geoffrey, A Sculptor's Manual. Reinhold, 1968.

Jansen, History of Art. Prentice Hall, 1962.

Meilach, Dona Z., Creative Carving. Reilley and Lee, 1967.

Mills, John W., The Technique of Sculpture. Reinhold, 1967.

Reed, Sir Herbert, Form Space and Vision. Graham Collier, 1967. (State adopted text)

END